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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,196	10/09/2003	Georges Zagdoun	3633-544-999	6000

22850 7590 08/30/2006

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EXAMINER	
PIZIALI, ANDREW T	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/681,196	**Applicant(s)** ZAGDOUN, GEORGES	
	Examiner Andrew T. Piziali	**Art Unit** 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2006*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23,25-29 and 31-43* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *23,25-29 and 31-43* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *09 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☒ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☒ Certified copies of the priority documents have been received in Application No. 09/609,157.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 7/24/2006 has been entered. The terminal disclaimer filed on 7/24/2006 has been entered. The examiner has withdrawn the objection to the specification based on the amendment to the specification. The double patenting rejection has been overcome based on the filed terminal disclaimer.

Terminal Disclaimer

2. The terminal disclaimer filed on 7/24/2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPN 6,692,833 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 23, 26-29, 32-36 and 38-43 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over USPN 4,198,667 to Lazzari et al. (hereinafter referred to as Lazzari).

Regarding claims 23, 26-29, 32-36 and 38-43, Lazzari discloses an article comprising a non-conductive glass substrate (S1, S2, S3) with multiple continuous metal layers (layers 11-19 in Figure 4) formed from superimposed layers of molybdenum and copper (see entire document including column 5, lines 8-10, the paragraph bridging columns 5 and 6, column 6, lines 17-24, and Figures 4 and 5). Lazzari discloses that the thickness of the molybdenum layer may be approximately 500 angstroms (50 nm) thick (see column 7, lines 6-11 and claims 4-5, 13-14, and 22-23).

Regarding claims 23, 26-28, 36 and 38-43, Lazzari does not specifically mention the claimed deposition method, but Lazzari does disclose that the metal layer may be deposited by vaporization or by sputtering (column 7, lines 6-11). Absent a showing to the contrary, it is the examiner's position that the article of the applied prior art is identical to or only slightly different than the claimed article. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). The applied prior art either anticipated or strongly suggested the claimed subject matter.

It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the applied prior art.

Regarding claims 26, 32 and 38, Lazzari does not limit the thickness of the molybdenum layer except for teaching that the thickness may be "approximately" 500 angstroms (50 nm) thick (column 7, lines 6-11) and that the molybdenum layer should have a thinner thickness than the copper layer (column 6, lines 17-24). Lazzari discloses that the copper layer may have a thickness of 2 microns (2,000 nm) (column 7, lines 14-24). Therefore, Lazzari teaches the molybdenum layer may have a thickness of about 50 nm to less than 2,000 nm. In the event that it is shown that Lazzari does not disclose the claimed molybdenum layer thickness of 70 nm to 500 nm with sufficient specificity, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness, such as from 70 to 500 nm, because it is understood by one of ordinary skill in the art that the layer thickness determines the adhesion strength to the glass substrate and the contact ability with external conductors (column 7, lines 6-11), and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 27, 33 and 39, Lazzari discloses that the thickness of the copper layer may be between 0.1 μm and 10 μm (column 7, lines 14-24).

Regarding claims 28, 34 and 40, Lazzari discloses that at least one of the layers may be etched or deposited in a discontinuous manner (column 6, line 30 through column 7, line 54).

Regarding claims 35-36 and 38-43, Lazzari discloses that the substrate may be a smooth glass substrate with an even thickness (column 5, lines 8-10 and Figure 3). It is noted that float glass is simply smooth glass with an even thickness.

Regarding claim 41, Lazzari discloses that the glass may be in the form of a ribbon (Figure 3).

Regarding claim 42, Lazzari discloses that the glass is in the form of a glazing because Lazzari teaches at least one metal layer based on tungsten or molybdenum deposited directly thereon, and a copper or silver layer at least partially covering the tungsten or molybdenum layer and in direct contact with the tungsten and molybdenum layer.

Regarding claim 43, Lazzari does not appear to specifically mention a mirror, but the current specification discloses that the currently claimed invention may serve as a mirror (page 7, lines 5-12). Considering that the article taught by the applied prior art is identical to the claimed article, it appears that the article taught by the applied prior art could serve as a mirror.

6. Claims 23, 26-29, 32-36 and 38-43 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over USPN 5,071,787 to Mori et al. (hereinafter referred to as Mori).

Regarding claims 23, 26-29, 32-36 and 38-43, Mori discloses an article comprising a non-conductive substrate with at least one continuous metal layer based on tungsten or molybdenum deposited directly thereon, and a silver layer at least partially covering the tungsten or molybdenum layer and in direct contact with the tungsten and molybdenum layer (see entire document including column 3, lines 58 through column 4, line 40, and the Figures). Mori discloses that the substrate may be non-conductive and comprise glass (column 4, lines 4-7) and that the thickness of the tungsten or molybdenum layer may be 1000 angstroms (100 nm) (column 4, lines 7-19).

Regarding claims 23, 26-28, 36 and 38-43, Mori does not specifically mention the claimed deposition method, but Mori does disclose that the metal layer may be deposited by vaporization or by sputtering (column 4, lines 11-13). Absent a showing to the contrary, it is the examiner's position that the article of the applied prior art is identical to or only slightly different than the claimed article. The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. The applied prior art either anticipated or strongly suggested the claimed subject matter.

Regarding claims 26, 32 and 38, Mori discloses that the thickness of the tungsten or molybdenum layer may be 1000 angstroms (100 nm) (column 4, lines 7-19).

Regarding claims 27, 33 and 39, Mori discloses that the thickness of the copper or silver layer may be between 0.1 μm and 10 μm (column 4, lines 20-65).

Regarding claims 28, 34 and 40, Mori discloses that at least one of the layers may be etched or deposited in a discontinuous manner (for example, a bump) (column 4, lines 4-65).

Regarding claims 35-36 and 38-43, Mori discloses that the substrate may be a smooth glass substrate with an even thickness (column 4, lines 4-7 and Figures 1A-1C). It is noted that float glass is simply smooth glass with an even thickness.

Regarding claim 41, Mori discloses that the glass may be in the form of a ribbon (Figures 1A-1C).

Regarding claim 42, Mori discloses that the glass is in the form of a glazing because

Mori teaches at least one metal layer based on tungsten or molybdenum deposited directly thereon, and a copper or silver layer at least partially covering the tungsten or molybdenum layer and in direct contact with the tungsten and molybdenum layer.

Regarding claim 43, Mori does not appear to specifically mention a mirror, but the current specification discloses that the currently claimed invention may serve as a mirror (page 7, lines 5-12). Considering that the article taught by the applied prior art is identical to the claimed article, it appears that the article taught by the applied prior art could serve as a mirror.

Claim Rejections - 35 USC § 103

7. Claims 25, 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,198,667 to Lazzari as applied to claims 23, 26-29, 32-36 and 38-43 above, and further in view of anyone of USPN 4,005,454 to Froloff et al. (hereinafter referred to as Froloff), USPN 6,047,876 to Smith, or USPN 6,231,693 to Lugscheider et al. (hereinafter referred to as Lugscheider).

Lazzari discloses that a soft solder layer may at least partially cover the copper or silver layer, but Lazzari does not specifically mention the soft solder material composition. Froloff (column 2, lines 56-68), Smith (column 1, lines 41-54), and Lugscheider (column 1, lines 37-49) each disclose that it is known to use a soft solder composition containing at least one metal chosen from the group consisting of nickel, chromium, titanium, tantalum, niobium, palladium, and zirconium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the soft solder from any suitable soft soldering material, as taught by Froloff, Smith, or Lugscheider, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

8. Claims 25, 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,071,787 to Mori as applied to claims 23, 26-29, 32-36 and 38-43 above, and further in view of anyone of USPN 4,386,987 to Covitch et al. (hereinafter referred to as Covitch) or USPN 5,091,765 to Yoshinaka et al. (hereinafter referred to as Yoshinaka).

Mori discloses that an electrode layer may at least partially cover the copper or silver layer, but Mori does not specifically mention the claimed metals. Covitch (column 4, lines 37-48) and Yoshinaka (column 3, lines 13-24) disclose that it is known to use an electrode containing at least one metal chosen from the group consisting of nickel, chromium, titanium, tantalum, niobium, palladium, and zirconium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the electrode from any suitable electrode material, as taught by Covitch or Yoshinaka, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Response to Arguments

9. Applicant's arguments filed 7/24/2006 have been fully considered but they are not persuasive.

The applicant asserts that Lazzari does not teach or suggest continuous molybdenum layers because the connecting conductors (layers 11-19 in Figure 4) are allegedly not continuous. The examiner respectfully disagrees. Lazzari teaches that the connecting conductors are each formed from two thin superimposed layers (paragraph bridging columns 5 and 6). Considering that Figure 4 illustrates the connecting conductors as continuous from a top view, and considering that Figure 5 illustrates the connecting conductors as continuous from a side view, the connecting conductors are clearly continuous. It is noted that the claim allows for multiple layers of continuous metal deposited directly on the glass substrate, because the claim is written to include "at least one continuous metal layer."

The applicant asserts that Lazzari does not teach or suggest a molybdenum layer having a thickness of between 30 and 500 nm because column 7, lines 6-11 of Lazzari only mentions a chromium layer with a thickness of approximately 50 nm. The examiner respectfully disagrees. Lazzari clearly discloses that the first thin layer of conductor material may be a thin layer of chromium or molybdenum (column 6, lines 17-24) and that the layer may have a thickness of approximately 50 nm (see claims 4-5, 13-14, and 22-23). Therefore, the claim limitations are disclosed with sufficient specificity.

Regarding claims 26, 32 and 38, Lazzari does not limit the thickness of the molybdenum layer except for teaching that the thickness may be "approximately" 500 angstroms (50 nm) thick (column 7, lines 6-11) and that the molybdenum layer should have a thinner thickness than the copper layer (column 6, lines 17-24). Lazzari discloses that the copper layer may have a thickness of 2 microns (2,000 nm) (column 7, lines 14-24). Therefore, Lazzari teaches the molybdenum layer may have a thickness of about 50 nm to less than 2,000 nm. In the event that it is shown that Lazzari does not disclose the claimed molybdenum layer thickness of 70 nm to 500 nm with sufficient specificity, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the thickness, such as from 70 to 500 nm, because it is understood by one of ordinary skill in the art that the layer thickness determines the adhesion strength to the glass substrate and the contact ability with external conductors (column 7, lines 6-

11), and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

The applicant asserts that Mori does not teach or suggest continuous metal layers deposited directly on the glass substrate (21), because the tungsten or molybdenum layers (22) are allegedly not continuous in Figures 1A-1C. The applicant appears to be arguing that since Figures (1A-1C) of Mori do not label each of the metals layers as separate layers, the layers have to be considered a single discontinuous layer. The examiner respectfully disagrees. The applicant claims "at least one continuous metal layer based on tungsten or molybdenum deposited directly thereon." (emphasis added) The applicant clearly defines multiple layers deposited directly on a surface as separate and distinct layers.

The applicant asserts that Mori does not teach or suggest a glass substrate having a tungsten or molybdenum layer in direct contact with the glass substrate. The examiner respectfully disagrees. Mori discloses that the substrate (21) may comprise glass and that a tungsten or molybdenum layer (22) may be deposited in direct contact with the substrate (21) (see column 4, lines 4-19 and Figure 1B).

The applicant also asserts that Mori does not teach or suggest that the tungsten or molybdenum layer (22) is in direct contact with a silver layer. The examiner respectfully disagrees. Mori discloses that a layer of silver (14) is in direct contact with the tungsten or molybdenum layer (22) (column 4, lines 20-40 and Figure 1B).

The applicant asserts that Lazzari and Mori are each non-analogous art compared to the claimed article, but applicant's argument is moot because MPEP 2131.05 states: "Arguments that the alleged anticipatory prior art is 'nonanalogous art' or 'teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not 'germane' to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting In re Self, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)). >See also State Contracting & Eng' g Corp. v. Condotte America, Inc., 346 F.3d 1057, 1068, 68 USPQ2d 1481, 1488 (Fed. Cir. 2003) (The question of whether a reference is analogous art is not relevant to whether that reference anticipates. A reference may be directed to an entirely different problem than the one addressed by the inventor, or may be from an entirely different field of endeavor than that of the claimed invention, yet the reference is still anticipatory if it explicitly or inherently discloses every limitation recited in the claims.).

The applicant asserts that the applied prior art does not teach or suggest the "improved mechanical and chemical properties." The applicant appears to be arguing unexpected results, but the applicant has failed to evidence the existence of unexpected results. In addition, although evidence of unobvious or unexpected advantageous properties can rebut prima facie obviousness, many of the current claims are rejected under 35 U.S.C. 102(b).

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

8/24/06

atp

ANDREW T. PIZIALI
PATENT EXAMINER